

What is claimed is:

1. A wheel assembly for supporting a bag that is tilted and pulled along a surface with a bottom edge of the bag adjacent to the surface, the wheel assembly comprising:

a wheel housing adapted to be rigidly attached to the bottom edge of the bag;

a strut member arranged within the housing for movement between first and second positions, where the strut member defines a longitudinal axis and comprises

first and second elongate pivot flanges,

a spring plate that spaces the first and second pivot flanges from each other such that the pivot flanges are spaced from and parallel to the longitudinal axis of the strut member,

first and second strut openings formed in the first and second pivot flanges, respectively, and

first and second wheel openings formed in the first and second pivot flanges, respectively;

a pivot pin that extends through the first and second strut openings of the strut member to the wheel housing, where the strut member rotates between the first and second positions about an axis defined by the pivot means, and

the longitudinal axis of the strut member extends substantially through the pivot means;

a spring member arranged to engage the wheel housing and the spring plate of the strut member to resiliently oppose rotation

of the strut member from the first position to the second position;
a wheel member; and
a wheel axle extending through the first and second wheel openings
5 and the wheel member to rotatably attach the wheel member to the strut member, where
at least a portion of the wheel member extends out of the wheel housing as the strut member moves between the first and second positions, and
10 the longitudinal axis of the strut member extends substantially through the wheel axle; wherein
the wheel member engages the surface and rotates to allow the bag to roll along the surface when the bag is tilted and pulled;
15 the longitudinal axis of the strut member is substantially vertical when the strut member is in the first position while the bag is tilted and pulled with only the wheel member in contact with the surface;
irregularities in the surface cause the wheel member to move
20 between the first and second positions relative to the bag such that the spring plate acts on and resiliently deforms the spring member to inhibit transfer of shocks associated with such irregularities from the wheel member to the wheel housing;
25 the spring member is located above, relative to true vertical, the wheel axle when the strut member moves between the first and second positions while the bag is tilted and pulled with only the wheel member in contact with the surface;
the pivot pin is located above, relative to true vertical, the wheel
30 axle when the strut member moves between the first and

second positions while the bag is tilted and pulled with only the wheel member in contact with the surface; and the pivot flanges and spring plate are substantially angled with respect to horizontal when the strut member moves between the first and second positions while the bag is tilted and pulled with only the wheel member in contact with the surface to inhibit the collection of debris between the strut member and the wheel housing.

2. A wheel assembly as recited in claim 1, in which a spring retaining portion of at least one of the spring plate of the strut member and the wheel housing maintains the spring member in a desired orientation relative to the strut member and the wheel housing.

3. A wheel assembly as recited in claim 2, in which the spring retaining portion extends from the spring plate of the strut member and into the spring member.

4. A wheel assembly as recited in claim 2, in which the spring retaining portion is a socket formed on the wheel housing that receives an end of the spring member.

5. A wheel assembly as recited in claim 1, further comprising: a retainer projection that extends from the strut member and into the spring member; and a socket formed on the wheel housing that receives an end of the spring member; wherein the retainer projection and the socket engage the spring member to maintain the spring member in a desired orientation relative to the strut member and the wheel housing.

6. A wheel assembly as recited in claim 1, further comprising bumper members mounted on at least one of the strut member and the housing member to absorb shocks when the strut member is in the second position.

7. A method of supporting a bag as the bag is tilted and pulled along a surface, the method comprising the steps of:
rigidly connecting a wheel housing to a bottom edge of the bag;
providing a strut member defining a longitudinal axis and comprising
first and second elongate pivot flanges,
a spring plate that spaces the first and second pivot flanges from each other such that the pivot flanges are spaced from and parallel to the longitudinal axis of the strut member,
first and second strut openings formed in the first and second pivot flanges, respectively, and
first and second wheel openings formed in the first and second pivot flanges, respectively;
extending a pivot pin through the first and second strut openings in the strut member to connect the strut member to the housing for rotation between first and second positions about a pivot axis such that the longitudinal axis defined by the strut member extends substantially through the pivot axis;
opposing movement of the strut member from the first position to the second position by arranging a spring member between the wheel housing and a spring plate of the strut member;
extending a wheel axle through the first and second wheel openings and a wheel member such that

at least a portion of the wheel member extends out of the
wheel housing as the strut member moves between
the first and second positions, and
the longitudinal axis of the strut member extends
5 substantially through the wheel axle;
tilting the bag such that the wheel member engages the surface and
the load of the bag is transmitted at least partly from the
wheel housing to the strut member through the spring
member; and
10 arranging the spring member such that the spring member is below,
relative to true vertical, the pivot portion when the bag is
tilted and pulled with only the wheel member in contact with
the surface such that the longitudinal axis of the strut
member is substantially vertically aligned when the strut
15 member is in the first position while the bag is tilted and
pulled with only the wheel member in contact with the
surface;
irregularities in the surface cause the wheel member to move
between the first and second positions relative to the bag
20 such that the spring plate acts on and resiliently deforms the
spring member to inhibit transfer of shocks associated with
such irregularities from the wheel member to the wheel
housing;
arranging the spring member above, relative to true vertical, the
25 wheel axle when the strut member moves between the first
and second positions while the bag is tilted and pulled with
only the wheel member in contact with the surface;
arranging the pivot pin above, relative to true vertical, the wheel
axle when the strut member moves between the first and

second positions while the bag is tilted and pulled with only
the wheel member in contact with the surface; and
angling the pivot flanges and spring plate with respect to horizontal
when the strut member moves between the first and second
positions while the bag is tilted and pulled with only the
wheel member in contact with the surface to inhibit the
collection of debris between the strut member and the wheel
housing.

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